

Claims

- 5 sub a.
1. A method of transforming plants of the *Allium* genus comprising the following steps:
 - (a) delivering previously manipulated DNA into embryo, or embryo derived culture cell types of the *Allium* genus via vector or direct gene transfer;
 - (b) selecting transformed plant material;
 - (c) culturing and regenerating the transformed plants;
 wherein the transformation is carried out without passage through a callus phase.
 2. A method according to claim 1 wherein the *Allium* genus is transformed with a strain of *Agrobacterium*.
 3. A method according to any one of claims 1-2 in which the plants are onions.
 4. A method according to any one of claims 1-3 wherein the embryos are transformed with a binary vector.
 5. A method according to any one of claims 1-4 in which embryos of an *Allium* species are inoculated immediately following their isolation.
 6. A method according to any one of claims 1-5 in which immature embryos are used.
 7. A method of transforming *Allium* using immature embryos as an explant source, including:
 - (a) isolating immature embryos of the *Allium* plant to be transformed;
 - (b) innoculating cultures of the immature embryos with an *Agrobacterium tumefaciens* strain containing a binary vector;
 - (c) wounding embryos and infiltrating embryos with agrobacteria;
 - (d) transferring embryos to a selective medium;
 - (e) culturing embryo pieces;
 - (f) selecting putative transgenic cultures; and
 - (g) regenerating plants.
 8. A method according to any one of claims 1-7 wherein the plant is transformed with an *Agrobacterium tumefaciens* strain containing a vector which carries a selectable gene.

9. A method according to claim 8 in which the selectable gene is a herbicide resistance gene.
10. A method according to claim 9 in which the herbicide resistance gene is the *bar* gene or a glyphosate resistance gene.
11. A method according to claim 8 in which the selectable gene is an antibiotic resistance gene.
12. A method according to claim 11 in which the antibiotic resistance gene is the *nptII* gene.
13. A method according to any one of claims 1-12 wherein the plant is transformed with a modified alliinase gene.
14. A transformed plant produced by the method of any one of claims 1-13.
15. A transformed plant produced by the method of any one of claims 1-9 in which the resulting transformed plant contains a modified gene involved in sulphur pathway assimilation or breakdown and as a result has altered levels of sulphur compounds.